OBLON, SPIVAK, et al. DOCKET NO: 249776US2S DIV INVENTOR: Hideo ANDO, et al. SHEET 1 of 25

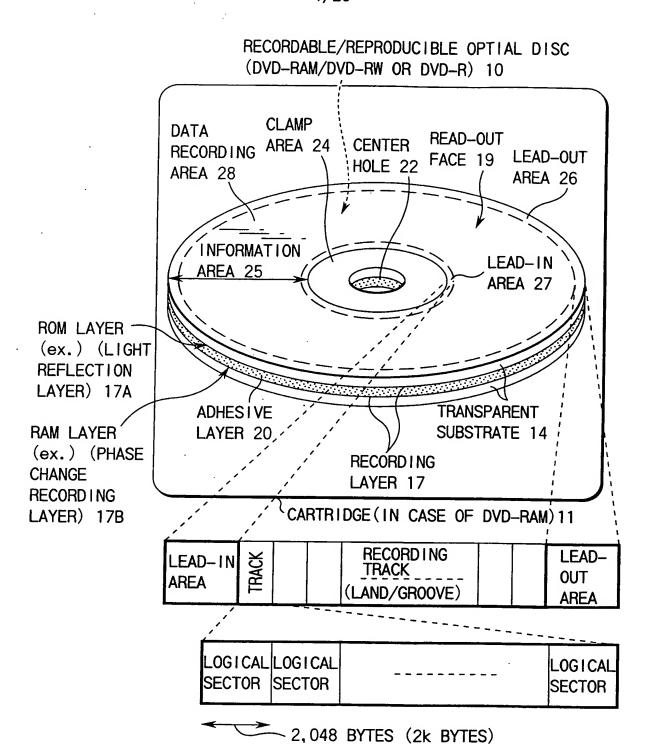


FIG. 1

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	ONE SECTOR (PHYSICAL SECTOR)							
PREVIOUS SECTOR	HEADER (EMBOSS)	SYNCHRO- NIZATION CODE	MODU- LATED SIGNAL		SYNCHRO- NIZATION CODE	MODU- LATED SIGNAL	HEADER OF NEXT SECTOR	

FIG. 2

	ONE ECC BLOCK 502 (CLUSTER OF 16 SECTORS = 32 kB)									
SECT 501s		SECTOR 501a	SECTOR 501b	SECTOR 501c		SECTOR 501p	SECTOR 501q			

FIG. 3

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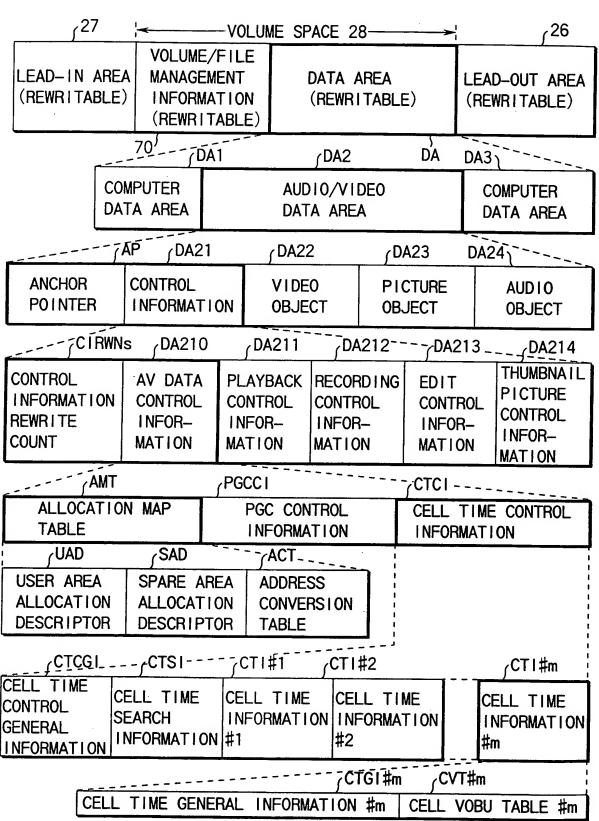


FIG. 4

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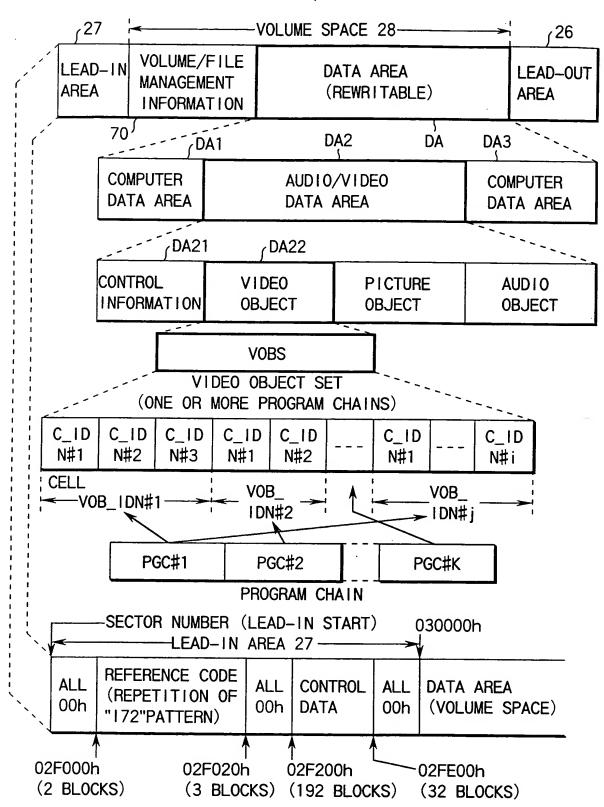


FIG.5

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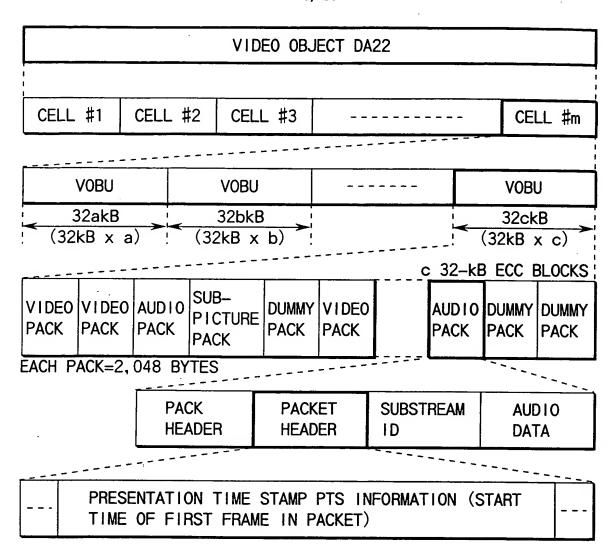


FIG. 6

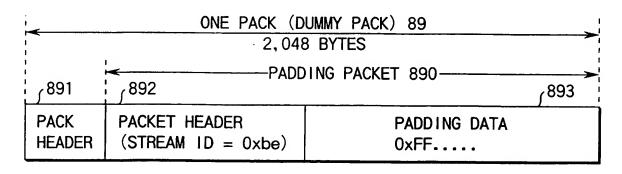


FIG. 7

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NUMBE PICTUI IN VOI	RES I	NUMBER PICTUR IN VOE	RES		PICT	BER O TURES OBU#	S PICTURES			PICT	BER OF URES 'OBU#n	
CELL T	DURA- TION SETS RIPTO			TIME OF CONSTI-			TIME CODE	NUMBE OF ACQUI RED DEFEC	- RI	CQUI- ED EFECT ODRESS		
REFERRED TO AS EXTENT												
CELL DATA GENERAL INFOR- MATION ACQUIRED DEFECT: VIDEO AUDIO INFOR- INFOR- MATION MATION ACQUIRED DEFECT: VIDEO AUDIO ANTION MATION							10 DR-		- TURE OR-			
CELL T	IME IN	NFORMA	TION	CTI	#m 		=	- = =	====			
CELL T	IME GE	NERAL	_ INF	ORMA	TION	#m	C	ELL	VOBU	TABLE	#m	
VOBU VOBU VOBU INFORMATION INFORMATION #1 #2												
	VOBU GENERAL DUMMY PACK SYNCHRONIZATION INFORMATION											

FIG.8

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Tooppe opens into			
CORRESPONDING	INFORMATION	INFORMATION	NUMBER OF
INFORMATION	NAME	CONTENTS	BYTES USED
VOBU GENERAL	I-PICTURE	DIFFERENTIAL ADDRESS VALUE OF	1
INFORMATION	END	I-PICTURE END POSITION FROM	
	POSITION	VOBU START POSITION	
DUMMY PACK	NUMBER OF	NUMBER OF DUMMY PACKS IN VOBU	1
INFORMATION	DUMMY PACKS		
	DUMMY PACKS	DUMMY PACK INSERTION	$2 \times DUMMY$
}	DISTRIBUTION	DIFFERENTIAL ADDRESS FROM START	PACK
		OF VOBU, AND EACH NUMBER OF	NUMBER
AUDIO	44546 675544	DUMMY PACKS (2 BYTES EACH)	
AUD10	AUDIO STREAM	NUMBER OF CHANNELS OF AUDIO	1
INFORMATION	CHANNEL NUMBER	STREAM	
THEODMATION	I-PICTURE	DIFFERENTIAL ADDRESS VALUE OF	1
	AUDIO POSITION #1	SECTOR INCLUDING AUDIO PACK OF	
	1031110N #1	THE SAME TIME AS I-PICTURE START TIME FROM START OF VOBU	
		(MSB = "0" : LOCATED BEFORE	· ·
		VOBU, MSB = "1" : LOCATED AFTER	i
		VOBU)	
	I-PICTURE	INDICATE SAMPLE NUMBER OF AUDIO	2
	START AUDIO	SAMPLE POSITION OF THE SAME	
	SAMPLE NUMBER #1	TIME AS I-PICTURE START TIME IN	
		SECTOR AS COEFFICIENT OF SERIAL	
		NUMBERS OF ALL AUDIO PACKS	
		PRESENCE/ABSENCE OF SYNCHRONIZATION INFORMATION	1
		BETWEEN AUDIO AND VIDEO STREAMS	
		(NEXT ITEM IS NOT AVAILABLE IF	
İ		ABSENT)	
		THE NUMBER OF AUDIO SAMPLES	2
		INCLUDED IN VOBU	_
	DATA	INCLUDED IN VODO	
	1 DICTURE AUDIO	POSITION #0	
	1-PICTURE AUDIO	AUDIO CANDI E MUNDED TO	1
		POSITION #2 AUDIO SAMPLE NUMBER #2 ATION FLAG #2 ATION DATA	2
	AUDIO SYNCHRONIZ	ATION PLAG #2	<u></u>
	AUDIO SYNCHRONIZ	ATTON DATA S	2

FIG.9

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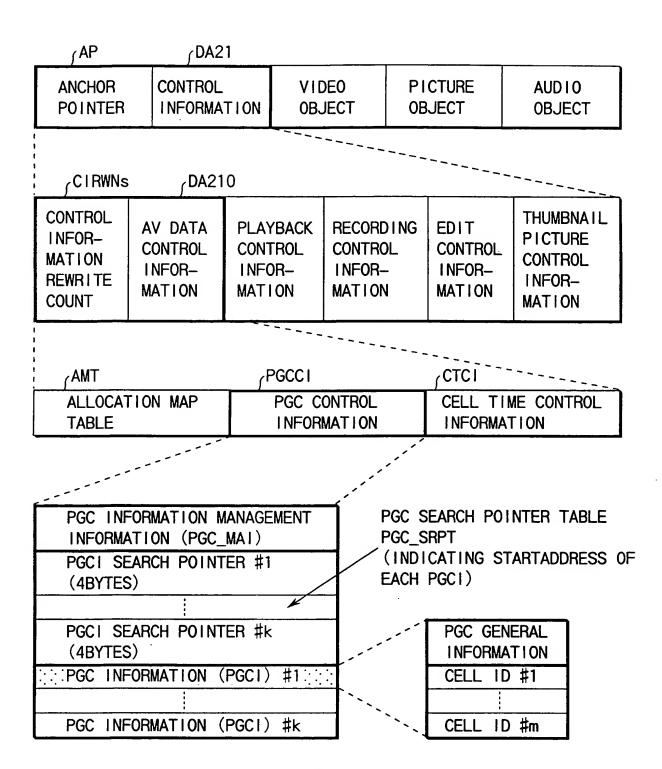


FIG. 10

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POSITIONS OF SHIFT PRODUCED BETWEEN ECC BLOCK BOUNDARY AND VOBU BOUNDARY

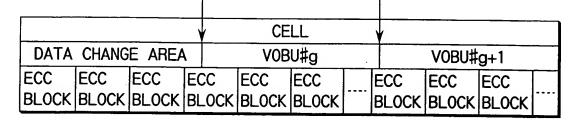


FIG. 11

SHIFT-REMOVED POSITIONS BETWEEN BOUNDARIES OF ECC AND VOBU

			,	CELI	_	,				
DATA CHANGE AREA VOBU#g						VOBU#	g+1			
ECC BLOCK					ECC BLOCK				ECC BLOCK	

FIG. 12

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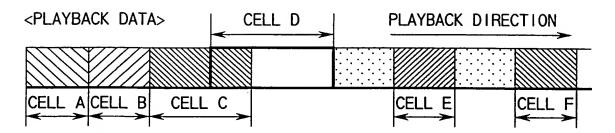


FIG. 13

PGC INFORMATION

PG	C#1	PGG	C#2	PGC#3		
NUMBER (OF CELLS	NUMBER (OF CELLS	NUMBER OF CELLS = 5		
CELL#1	CELL A	CELL#1	CELL D	CELL#1	CELL E	
CELL#2	CELL B	CELL#2	CELL E	CELL#2	CELL A	
CELL#3	CELL C	CELL#3	CELL F	CELL#3	CELL D	
				CELL#4	CELL B	
				CELL#5	CELL E	

FIG. 14

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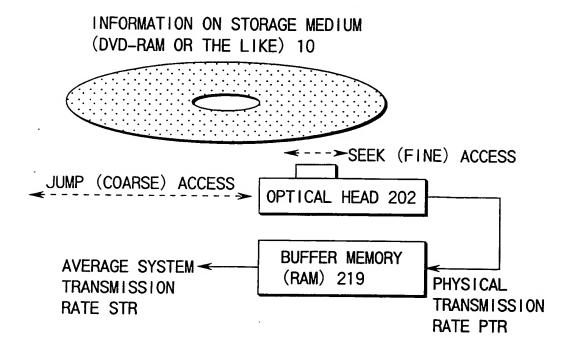
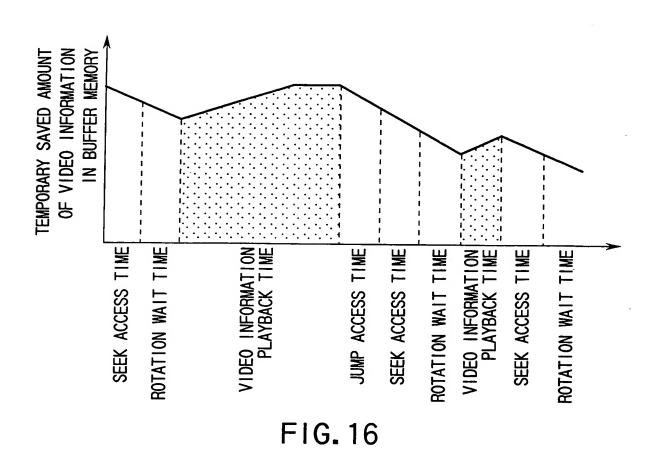
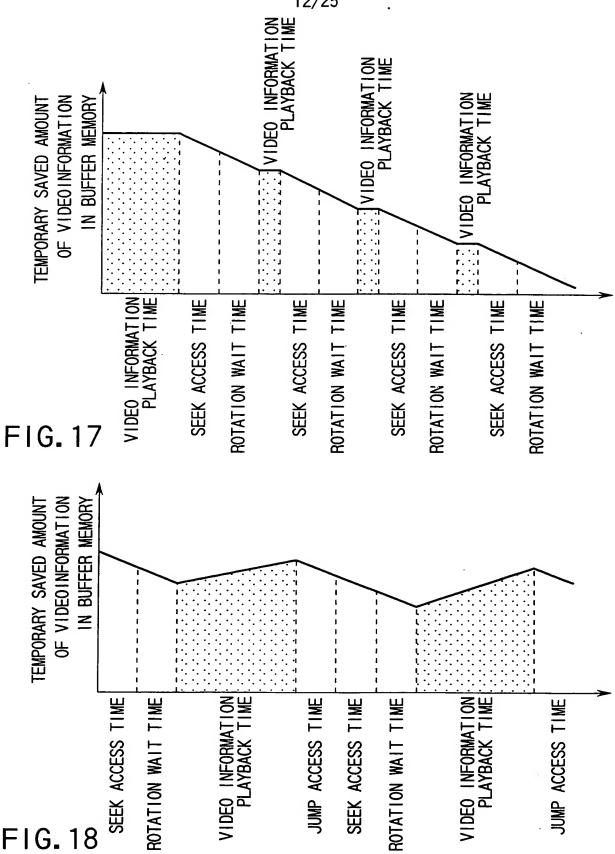


FIG. 15



OBLON, SPIVAK, et al. DOCKET NO: 249776US2S DIV INVENTOR: Hideo ANDO, et al. **SHEET 12 of 25** 12/25 VIDEO INFORMATION PLAYBACK TIME VIDEO INFORMATION PLAYBACK TIME [[]] VIDEO INFORMATION PLAYBACK TIME SEEK ACCESS TIME ROTATION WAIT TIME



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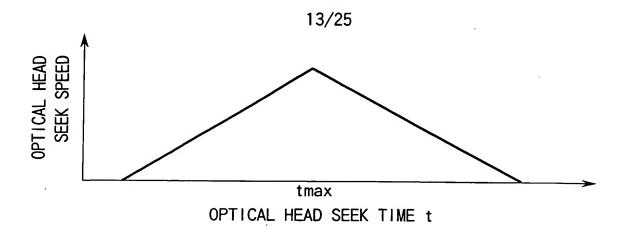


FIG. 19

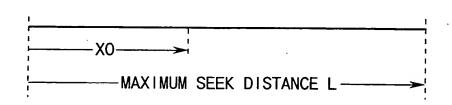


FIG. 20

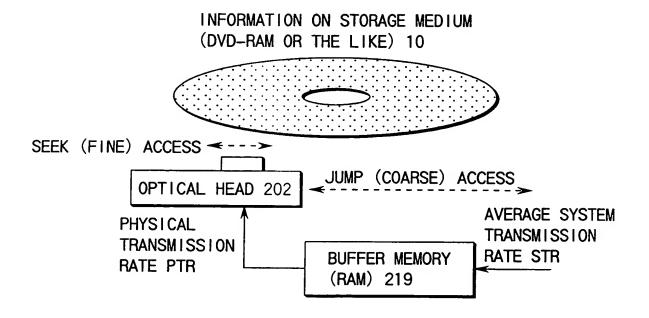


FIG. 21

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FREE AREA 107	. С	ELL #	1	CELL	_ #2	CELL #3			
									V0BU 108 j

FIG. 22

FREE AREA 107	CELL #1		CELL #2A	•	(ELL ‡	2B	CELL #3			
	V0BU 108a	V0BU 108b	V0BU	V0BU 108d	10	OBU V8e	V0BU 108f	V0BU 108g	VOBU 108h	V0BU 108 i	V0BU 108 j

FIG. 23

CELL #2A	C	ELL#	1	CELL #2B			CELL #3			
VOBU VOBU	V0BU	V0BU	V0BU	 VOBU	V0BU	V0BU	V0BU	V0BU	V0BU	
108d* 108p	108a	108b	108c*	108q	108f	108g	108h	108 i	108 j	

FREE AREA 106

FIG. 24

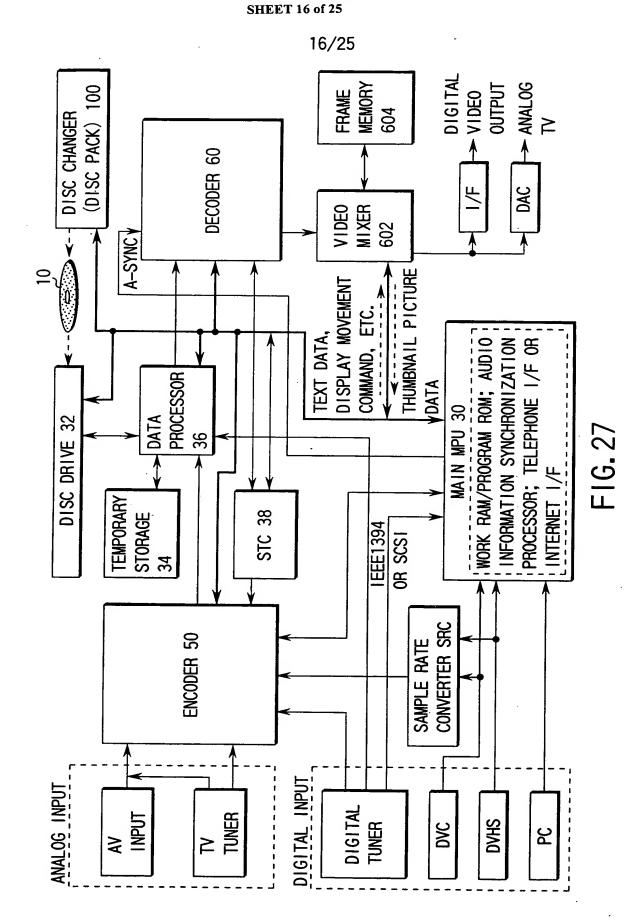
DOCKET NO: 249776US2S DIV INVENTOR: Hideo ANDO, et al. SHEET 15 of 25 15/25 VIDEO INFORMATION PLAYBACK TIME VIDEO INFORMATION PLAYBACK TIME VIDEO INFORMATION

PLAYBACK TIME OF VIDEOINFORMATION IN BUFFER MEMORY TEMPORARY SAVED AMOUNT VIDEO INFORMATION RECORDING TIME SEEK ACCESS TIME ROTATION WAIT TIME FIG. 25 OF VIDEOINFORMATION IN BUFFER MEMORY TEMPORARY SAVED AMOUNT SEEK ACCESS TIME ROTATION WAIT TIME JUMP ACCESS TIME SEEK ACCESS TIME VIDEO INFORMATION RECORDING TIME ROTATION WAIT TIME JUMP ACCESS TIME VIDEO INFORMAT RECORDING T FIG. 26

OBLON, SPIVAK, et al.

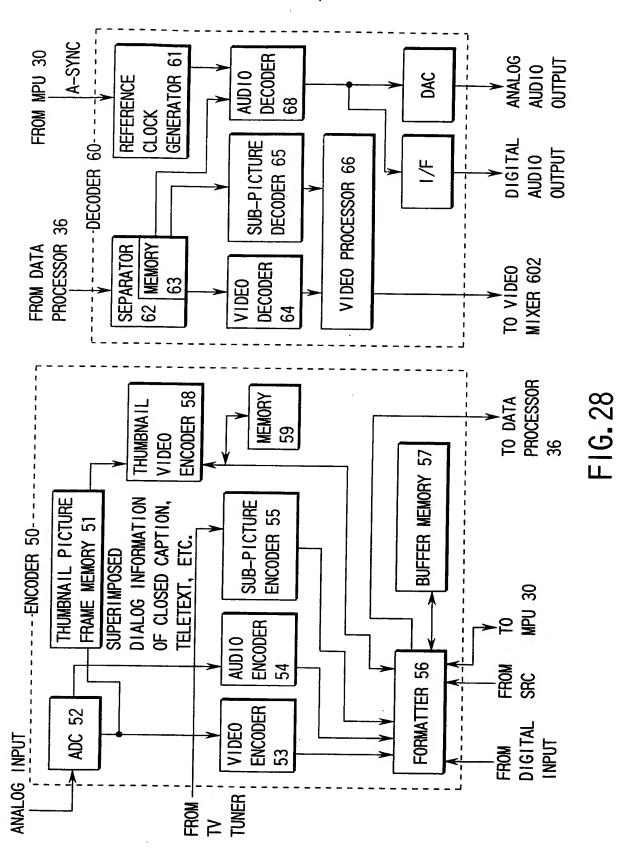
OBLON, SPIVAK, et al.

DOCKET NO: 249776US2S DIV
INVENTOR: Hideo ANDO, et al.



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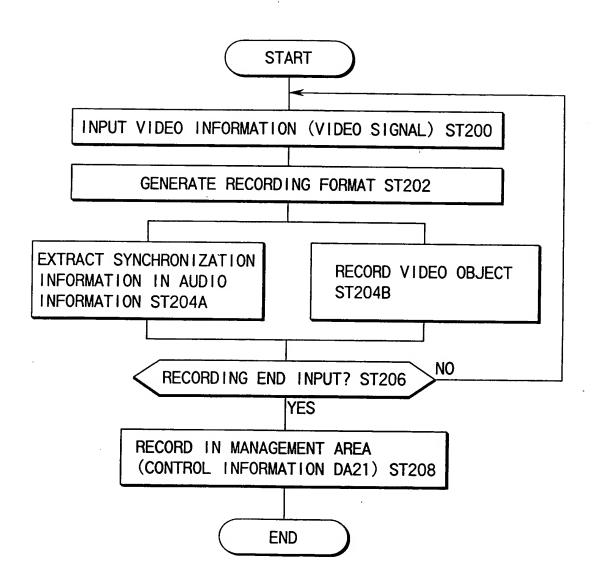
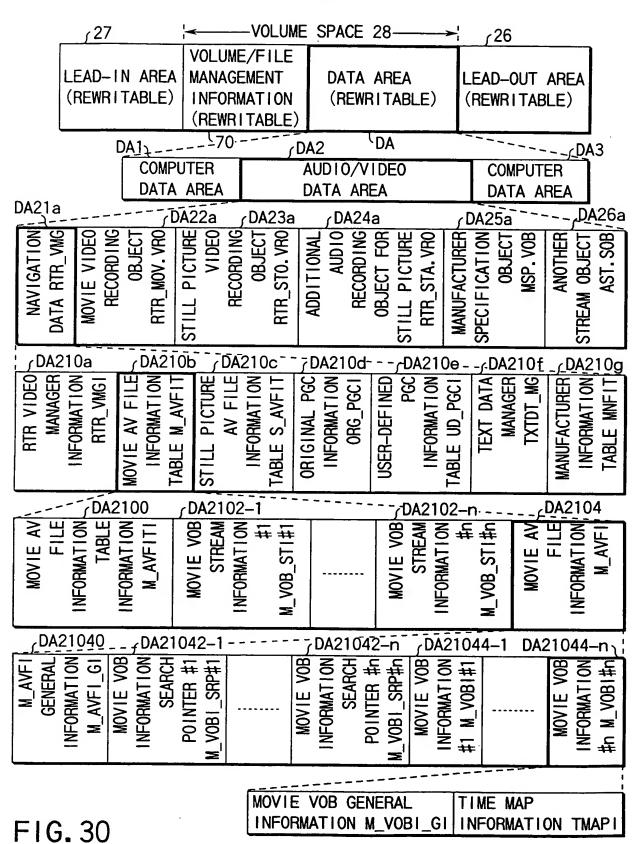


FIG. 29

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			1401	/.E.	100 0							
					OB G				IME NFOR		P TION T	MAPI
												1
TIME MAP GENERAL INFORMATION TM_ENT#1 TME ENTRY #1 TM_ENT#1 TM_ENT#r VOBU ENTRY #1 VOBU_ENT#									E	OBU NTRY # OBU_EN		
						:==-						
	VOBU ENTRY		:					OBU E	NTRY	_#	q	
VOBU#1 1STREF _SZ	VOBU#1 VOBU_PI _TM	3	Vobu#1 Vobu _SZ				U#q REF	1	KU#q KU_PB 	,	VOBU VOBU _SZ	
		1-1-		/ / /								
NUMBER OF PICTURES OF VOBU #1	NUMBER OF PICTURES OF VOBU #2		SIZE OF VOBU #1		SIZE OF		I-PICTURE SIZE OF	VOBU#1			SIZE OF VOBU#2	
CTG1#	TIME GENE m (CELL D MATION/TI	ATA (L	V		(VOE	VOB BU GE DRMAT	NERA	L	E CVT	m
											∠CT1#r	n :
CELL TIME CONTROL GENERAL INFORMATION SEARCH INFORMATION #1 CELL TIME INFORMATION #2 CELL TIME INFORMATION #4												
						СТС						
ALLOC MAP T	CATION CABLE		C CONT FORMAT		CEL	L	TIME (ROL			
CORRESPO	CORRESPONDING TO AV DATA CONTROL INFORMATION DA210											

FIG. 31

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TIME MAP GENERAL INFORMATION TMAP_GI

RELATIVE BYTE POSITION	FIELD NAME	CONTENTS	NUMBER OF BYTES
0-1	TM_FNT_Ns	NUMBER OF TIME ENTRIES	2
2–3	VOBU_ENT_Ns	NUMBER OF VOBU ENTRIES	2
4–5	TM_OFS	TIME OFFSET	2
6–9	ADR_OFS	ADDRESS OFFSET	4

FIG. 32

TIME ENTRY TM_ENT

RELATIVE BYTE POSITION	FIELD NAME	CONTENTS	NUMBER OF BYTES
0–1	VOBU_ENTN	VOBU ENTRY NUMBER	2
2	TM_DIFF	TIME DIFFERENCE	1
3–6	VOBU_ADR	TARGET VOBU ADDRESS	4

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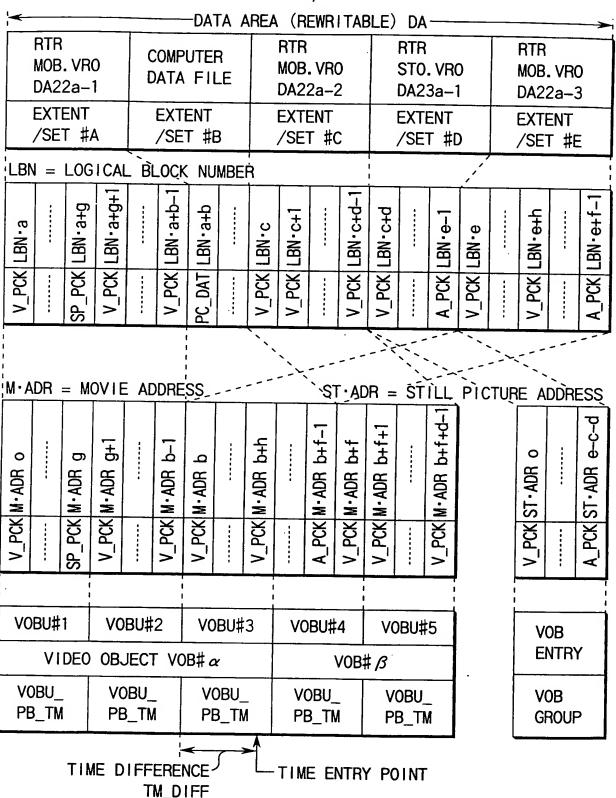


FIG. 34

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ROOT DIRECTORY SUBDIRECTORY DVD_RTR DIRECTORY FILE RTR. IFO (NAVIGATION DATA RTR_VMG) RTR. BUP (BACKUP OF RTR. 1F0) RTR. MOV. VRO (MOVIE VIDEO OBJECT) RTR_STO. VRO (STILL PICTURE VIDEO OBJECT) RTR_STA. VRO (ADDITIONAL AUDIO OBJECT FOR STILL PICTURE) MSP. VOB (MANUFACTURER SPECIFICATION OBJECT) AST. SOB (ANOTHER STREAM OBJECT) RTR = REAL-TIME RECORDING OTHER DIRECTORIES VIDEO_TS (VIDEO TITLE SET) AUDIO_TS (AUDIO TITLE SET) SUBDIRECTORY FOR OTHER FILES SAVING COMPUTER DATA

FIG. 35

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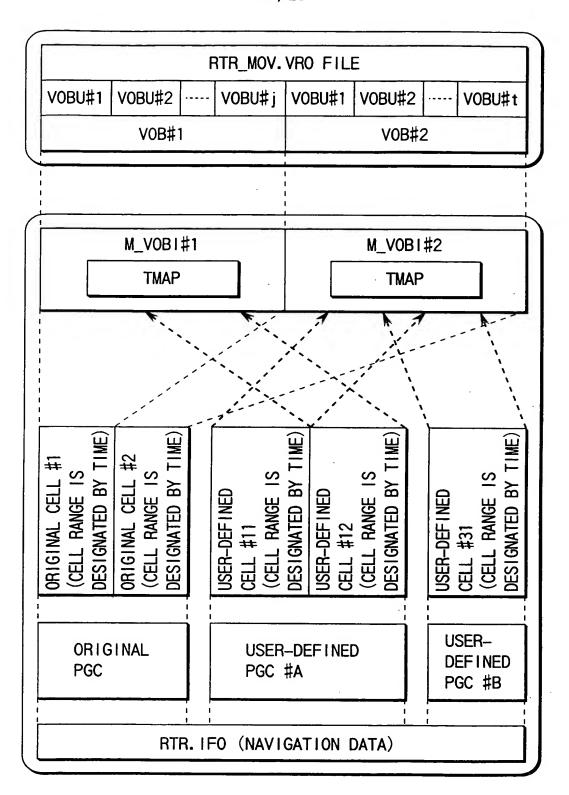


FIG. 36

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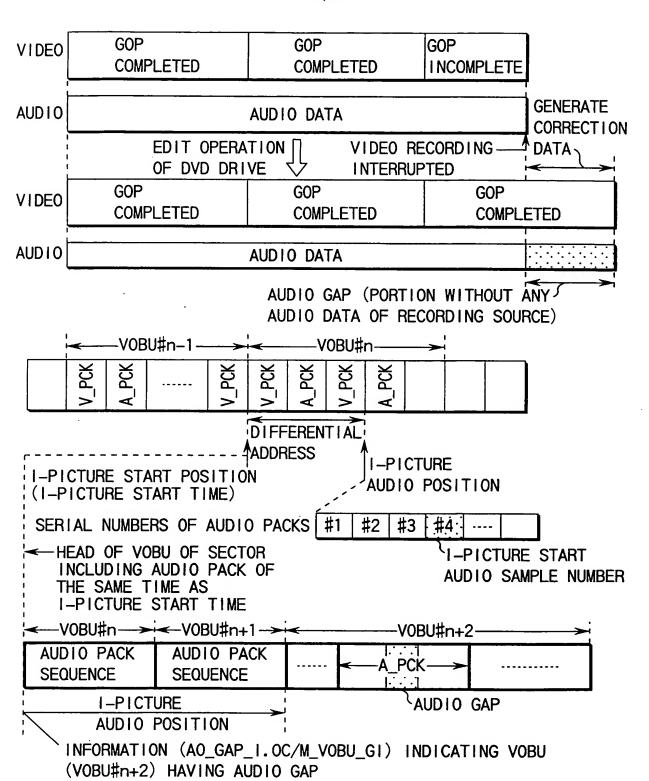


FIG. 37